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HOME LAUNDERING

METHODS • SUPPLIES
EQUIPMENT • COSTS

NEW YORK STATE COLLEGE OF HOME ECONOMICS

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HOME LAUNDERING

METHODS • SUPPLIES • EQUIPMENT • COSTS

Lucille J. Williamson

Home laundering is an art. Like any art, it requires patience and practice to learn the right techniques. Not one, but many combinations of methods and equipment make for success. Two homemakers may use different water, different equipment, and different soaps; yet they both can have clothes that are beautifully clean. On the other hand, a homemaker who has plenty of hot water, an excellent machine, good soap, and a water softener, sometimes hangs out a dingy, grimy wash. What makes the difference?

The greatest difference is that the first two followed good methods of work and the other one made mistakes such as failing to soften the water for rinsing, using too little or too much soap, or using wash and rinse water that had become dirty.

Successful washing has always required knowledge of fabrics, control of water hardness and temperature, and the proper use of a detergent. New fabrics and new automatic laundry equipment have reduced the work load in the laundry and at the same time increased the problems of managing it successfully. On the one hand there is need for careful sorting and on the other a need to wash many kinds of garments at the same time if full use is to be made of the new automatic machines. Usually we try to gather up a full 8-pound load and to include everything that is soiled. Many automatic machines are being blamed for poor washing when the fault is washing very dirty clothes with slightly soiled ones and mixing colors with whites. The development of colorfast dyes has made this mixing possible to a greater extent than ever before. However, there are still limits to mixing colored and white garments in the washing if clothes are to appear at their best. Colors that are fast to the extent that they show no fading may still release enough dye to tinge or gray other fabrics. Indeed, this small transfer of color will be greater at the higher washing temperatures recommended for good washing.

New supplies, too, are needed for both fabrics and machines. For example, fabric softeners must be used only in the rinse cycle, and controlled sudsing detergents are required in some washing machines.

STEPS THAT LEAD TO GOOD WASHING

Sort according to color, fabric, and degree of soil

Consider material, color, and soil in making up a load. These will determine the water temperature, wash period, and type of agitation.

Wash white clothes before colored, pastels before dark colors, and little soiled before heavily soiled when more than one load is washed in the same water.

Wash alone the fabrics that pick up color easily such as white and light nylons. Colors that appear to be fast may bleed a little, especially at higher wash temperatures.

Check pockets and cuffs, shake out loose dirt

Dust, sand, paper tissues, and many other soils in wash water will settle on lightly soiled clothes and make them appear dirtier. You will have fewer laundry problems if such soil is removed before the clothes are put into the water.

Follow directions for removing stains

Directions for removing special stains, such as grass and blood, are given in instruction booklets that come with washing machines and are available from magazines and extension offices. The quicker a stain is treated the more likely is its removal. Stains should be removed before articles are washed. If the cause of the stain is not known, the fabric should be washed in cool water before other treatment is tried.

Pretreat special soils before washing

Rinse in cool water those soils that will be set by hot water. Eggs, milk, meat, and other protein soils will set in fabric at the temperatures recommended for washing white materials. Their presence may first be noticed when brown spots appear, on a tablecloth or pillowcase for example, during ironing. It is often too late then to remove the spot.

Rinse in clear water any soil that will form soap scum. Hard water is only one of the sources of calcium compounds that will unite with soap to form the sticky substance that makes laundered materials unattractive. Lime from the field and the products sold to settle dust and melt snow are all rich in calcium. Dust that comes from limed fields and the clothes of those who handle milk often introduce calcium products in wash water. Additional sources of calcium are milk, custards, gravies, and other foods made with milk.

Rub concentrated detergent on heavy, greasy soil. The detergent used for washing can be rubbed into badly soiled parts, such as collars, grease spots on aprons, and the grimy seats of small children's pants. Dampen the spots first. Apply the concentrated detergent and scrub with hands, brush, or on a board. Dinginess and grime will often disappear after this treatment.

Use the right amount of water at the right temperature

Each washing machine has its own water line marked on the inside of the machine or indicated in the book of directions. Usually a machine filled to the water line will hold from 14 to 18 gallons of water. The clothes should move freely in the water. Overloading reduces cleaning and causes wear of machine and clothes.

The clean white wash of washboard and boiler days was a result of boiling the clothes for some time. Nowadays, the washing machine, water softeners, and new detergents make it possible to wash clothes clean without boiling them. Even so, much home washing could be improved by raising water temperatures nearer to those used in commercial laundries. The American Institute of Laundering makes the following recommendations for washing temperatures:

White cottons and linens	160°F.
Light-colored cottons and linens	120°F.
Dark-colored clothes	90°F.
Rayons, nylons, and other synthetic fabrics	90°F.
Woolens	80°F.

It is recommended that the rinse water for woolens be the same temperature as the wash water since a change to a higher or lower water temperature may cause shrinkage.

Cool water washing is recommended not only for woolens and synthetic materials but also for some fabrics that require little or no ironing. Permanent wrinkles form when the finish is softened by washing even at medium temperatures. Low temperature washing of these no-iron fabrics is possible because the finish tends to shed rather than hold dirt. It is not chosen because it improves cleaning. In fact, low temperature washing is satisfactory only for garments that are lightly soiled.

Washing temperatures of 130° to 140°F. for white cottons and linens may be more practical than higher temperatures because of the danger from scalding hot water as it comes from the faucet, and because of the corrosion that takes place in water systems at high temperatures. When these higher temperatures are used, it is worth considering glass-lined or stainless steel tanks to avoid the corrosion that occurs when pipes and tank are made of galvanized iron.

Water temperatures will be lower in the washing machine than in the hot water tank because the water is cooled by pipes, machine, and clothes. Candy or dairy thermometers are handy for checking temperatures. If a thermometer is not available, the temperature can be estimated by feeling the water. Most of us can wash hands comfortably in water at 90° to 100°F.; water at 110° to 120°F. feels uncomfortably warm; and few of us can leave hands in water at 140°F. for even a second or two.

Select and use your detergent with understanding

Washing products may be either soaps or synthetic detergents, which are often called syndets. Soaps and syndets are "tailored" for special duties. They are usually combinations of several products, such as the detergent, a water softener, and a brightening or bleaching agent. Most of them belong in one of the following classifications:

Classification	Use
Mild soaps and mild syndets	For washing clothes that are only slightly soiled and for delicate fabrics and dyes that might be damaged by an all-purpose product.
All-purpose soaps and all-purpose syndets	For heavier soil and the general family wash. Controlled sudsing detergents usually belong in this group.

Both mild and all-purpose soaps make solutions that are alkaline. Mild synthetic detergents do not give alkaline solutions. Because alkalinity is helpful in cleaning, builders have been added to all-purpose soaps and all-purpose syndets to increase their cleaning power. However, delicate fabrics and dyes may be altered by the alkalinity of all-purpose products. For this reason, mild syndets and mild soaps are advised for washing fine fabrics. But if clothes are heavily soiled, cleaning may not be satisfactory unless a more alkaline product is used. When this is necessary, damage is kept to a minimum by quick washing and thorough rinsing.

Controlled sudsing detergents have been developed to meet the need of the tumbler washer in which the sudsing of soap or other detergents will hamper washing action. There is little or no sudsing with these compounds. They may be used also in the agitator machines.

Soaps can be used for all washing in soft or softened water, unless the suds will interfere with the action of the machine. When soap is used in hard water without a water softener, it will form a sticky curd. The synthetic detergents do not form soap curd and are preferred by many because they do not require a water softener unless water is unusually hard. Synthetic detergents may also be preferred because of their outstanding ability to remove grease. Since some manufacturers feel that synthetic detergents are not adapted to their machines, you should check the choice of washing products with your salesman or with the home economics department of the company that makes your machine.

Measure the detergent accurately

When soap or a sudsing syndet is used, suds should be maintained at all times. The label on the product will usually call for suds of an inch or two in the agitator machine. In the instruction book which comes with a tumbler machine, there are directions for keeping the suds level below the point at which it will interfere with washing action.

It usually takes from one to one and one-half cups of detergent for a load in the agitator machine and about half as much in the tumbler machine. More soap is needed when water is hard and more of any detergent when clothing is heavily soiled. If you wash more than one load in the same water, you will need to add detergent with each extra load.

Select and use water softeners with understanding

Water softening is a chemical reaction in which calcium, magnesium, and iron salts react with the softener to produce a new product that will not form a sticky curd with soap. The amount of softener needed is in proportion to the amount of water used and the degree of water hardness. Directions for the amount of softener to use are given on labels and in books that come with washing machines. If suds form when you first add soap, the water is soft; if a curd forms, more softener is needed.

Soap curd forms when fabrics are moved from wash water to hard rinse water. The first rinse water should thus be softened, if it is hard, because most of the soap curd held in poorly washed fabrics is formed at this stage.

Water softening consists of taking out of action the minerals such as calcium and magnesium that combine with soap. The zeolite water system removes these minerals from water.

Softeners that are *added* to the water act in one of two ways. The well-known ones such as washing soda, borax, trisodium phosphate, sometimes called TSP, combine with the minerals to form small particles that make water cloudy. Newer ones of the polyphosphate group leave the water clean. These softeners that produce clear solutions are sometimes called non-precipitating softeners.

The non-precipitating softeners are generally more expensive than those that make the water cloudy but they are widely used because women like their effect on clothes. They have the ability to redissolve and wash away soap curd that has been impregnated in clothes. In fact it is a good practice to clean up grimy fabrics by running a load of them through the washing cycle with a cupful of the water softener and without other detergent.

Another advantage of the non-precipitating softeners is that their solutions are less alkaline than are those of the washing soda, trisodium phosphate group. High alkalinity is not a problem if all of the water is well mixed with the softener and if an excess of softener is avoided. Hands and fabrics are sometimes damaged, however, by contact with a little water and a large amount of softener —a condition that arises if the water softener is put in the washing machine and the water added after fabrics are placed in the machine.

Use a short washing period

The wash water carries cleansing agents over the surface of textiles and into the fabric to loosen soil and flush it away. Much of the soil is dissolved in the water, some sinks to the bottom of the tub or floats to the top, and some remains suspended in the water. Experiments have shown that the soil is released in a very few minutes and that the suspended soil gradually resettles on the fabric. A short washing period and the right concentration of detergent will keep redeposition of soil to a minimum.

Slightly soiled articles are clean in 2 or 3 minutes; 10 or 15 minutes is considered adequate time for removing the heaviest soil. If the laundry is not clean by that time, a second washing in fresh water and detergent is suggested.

Rinse thoroughly and wring or spin away excess water

Plenty of clean rinse water and good agitation are necessary to remove soap, water softener, and soil from fabrics. Rinse water should be replaced with fresh water as soon as it becomes soiled. Thorough wringing or spinning will reduce the soil moved from one wash or rinse water to the next, because less of the water that holds the soil is carried by the fabric. Lengthening the spinning period and good adjustment of the wringer will help produce a clean wash. Both the rinse in which clothes are submerged, sometimes called the deep rinse, and the spray rinse used with spinner machines are effective. Automatic machines usually use a combination of spray and deep rinses. Many of them have an overflow rinse so that loose soil is floated away and not strained though the clothes.

Each rinse adds to the cleanness of the wash. When water is limited, remember that more dirt will be flushed away by two or three small rinses than by the same amount of water used as one rinse. Rinse water may be warm or cold. Warm water rinses more rapidly than cold. When a cold rinse is used, thorough agitation is essential and more water may be needed. A usual plan is to have a warm rinse followed by a cold one.

SPECIAL SUPPLIES AND SPECIAL FINISHES

Many familiar laundry products and many new ones are heavily promoted for the special purposes of replacing something that has been washed away from the fabric or for making the fabric more pleasant to see, to feel, and to use. Success with most of them depends on using them in the right amount and according to directions. Unfortunately, many are incompatible and may destroy the effect desired if used together. For example, bleaches destroy some of the fluorescent dyes used as whitening agents, and the effect of the fabric softeners is lost when they are mixed with most detergents.

Anti-static preparations

Anti-static rinses leave on the fabric, when dry, something that holds a small amount of moisture on the surface. This moisture helps carry away any electrical charge that would build up to the point that the fabric clings to other fabrics. Many of the new synthetic fabrics hold so little moisture that static is a problem in handling and wearing them. Since the anti-static products are incompatible with many laundry supplies it is essential that they be used in the laundry process as directed.

Bluing

Although it is often thought that bluing improves the whiteness of laundered articles, it simply counteracts the yellow that sometimes appears in white fabrics. Most bluings are solutions that mask the yellow and make the fabric appear a little more gray.

Fabric softeners

Fabric softeners are in no way related to water softeners. The softeners attach to the surface of the fabric and help retain the little surface moisture that is essential for a soft, fluffy feeling. This moisture also reduces the chance of sharp wrinkles being formed in clothes.

The directions that come with this new member of the laundry supply family always give the amount to use in relation to the weight of the washload rather than the quantity of rinse water. The instructions also call for placing the fabric softener in the final rinse water. The desired effect will be lost if the product is added at an earlier time because other laundry supplies such as detergents will combine with it and there will be little to combine with the fabric.

Stiffening agents

Starch is by far the most frequently used stiffening agent. There is on the market at least one pre-cooked starch that can be mixed with water and used without cooking. The bottled starches are ready for use when they are diluted

and are especially convenient when there are only a few articles to be starched. Although the liquid starch costs more than the dry starch, it may be economical in the end because there is less waste.

Other products sold for stiffening contain waxes and resins. Statements on the label indicate that results are similar to or better than those with starch and are more lasting. Directions should be followed with care. If you encounter problems such as spotting or too much stiffness in your clothes, write to the manufacturer for help.

Whitening and brightening agents

Many laundry products contain certain special ingredients that whiten white fabrics and brighten all fabrics. These special ingredients are fluorescent dyes, sometimes called optical brighteners. They reflect ultraviolet light waves so that the white articles appear brilliant and colors appear bright when seen in a light that has a good proportion of ultraviolet waves. The effect is less apparent indoors than outdoors because the light that comes through the windows has many ultraviolet waves removed. Certainly the appearance of the wash on the line is improved by the fluorescent dyes. The fluorescent dyes are sometimes incompatible with other laundry supplies, such as the fabric softeners. It is important to follow directions for use.

Bleaches

Careless bleaching is responsible for millions of dollars of damage to laundered articles each year. Sometimes the damage is gradual, sometimes holes appear at once. Usually too much bleach is used, or it is too concentrated when it reaches the article. Sometimes it is incompatible with the fabric or its finish.

Bleaching is a chemical action known as oxidation. Oxygen combines with a colored substance to form a new product that is white or without color. Oxygen in the air bleaches clothes hung or spread outdoors for drying. The experienced laundress knows that she can increase bleaching by hanging laundry in the sunlight and by wetting it again and again. She also knows that colored clothes fade under these conditions of drying.

Essential requirements for laundry bleaches are that they release oxygen under conditions of use and that they do not damage the fabrics. Liquid bleaches and some powdered bleaches release both chlorine and oxygen. Chlorine causes no difficulty with most textiles but is damaging to animal fibers such as wool and silk and to many fabric finishes.

Powdered bleaches that can be used safely for the animal fibers can also be used for synthetic fibers made from animal products and for all resin-finished fabrics. These powdered bleaches release oxygen but not chlorine. Those that contain sodium perborate are likely to suggest temperatures near boiling because these bleaches are much less effective at lower temperatures.

DIRECTIONS FOR BLEACHING

Bleach in the wash water, not the rinse water.

Follow directions on the label. Experiment with less than is called for —NEVER use more. Maximum limits sometimes suggested for liquid bleaches are 1 tablespoonful for a gallon of water, one cup for a top loading washer, or one-half cup for a tumbler one. Commercial laundries use less than this.

Mix the bleach with ALL of the water before adding the clothes. Dilute bleach with four times as much water when it must be added to water in which clothes are washing. Pour in slowly when the machine is in action. Follow exactly the directions in your washer booklet for adding bleach.

Do not try to bleach if there is iron in the water. The fabrics will turn pink or yellow.

Avoid chlorine bleaches for silk, wool, and any finishes that you think might be damaged.

Reducing agents that remove color

Colors and stains that do not disappear when oxygen bleaches are used may respond to a group of products known to the chemist as reducing agents. The most reliable source for these color removers is the dye department of the drug or department store. The photographer's "hypo" can also be used, but many of the photographic supplies have additives that make them unsuited to laundry use.

Resin-finished fabrics

Resin-finished fabrics are the crease resistant ones, those that have permanent pleats, embossed designs, and those that require little or no ironing. Tags on garments made of these fabrics often warn against the use of chlorine bleach. Since tags may be lost and warnings overlooked, the careful laundress will bleach resin-finished fabrics with chlorine bleaches only when advised that they may be used with the fabric.

Resin-finished fabrics sometimes turn yellow when bleached with chlorine compounds. Their color may be restored by treatment with reducing compounds such as color removers sold for removing dyes. However, there is no way of restoring the strength lost when resins that have retained chlorine are pressed with a warm iron. A resin finish may retain chlorine without change of color but it will be damaged by heat.

COSTS OF WATER AND LAUNDRY SUPPLIES

Costs of hot and cold water

Thirty gallons of water at the rate of 25 cents for 100 cubic feet (750 gallons) will cost one cent. This is the amount of water used by many automatic washing machines for one cycle of washing and rinsing and also for drying a load of clothes in dryers that condense moisture with cold water. It will cost from 3 to 8 cents to heat 10 gallons of water to 140°F. at the rates most of us pay for gas and electricity, provided our water heaters are as efficient as they should be. Usually from one-third to two-thirds of the water used in the laundry is heated.

About one decitherm (10,000 B.T.U.'s, or British thermal units) of heat from gas, or 2½ kilowatt hours of electricity, will be used by heaters of accepted standards to raise the temperature of 10 gallons of water 100°F., as from 40° to 140°F. The heat value of a cubic foot of natural gas is usually about 1000 B.T.U.'s.

Costs of laundry supplies

The following prices and costs are suggested as guides. The actual cost to you is the price paid for a package divided by the number of loads washed.

Products that are considered interchangeable are usually sold in about the same amounts and at prices that do not vary more than a few cents. For example, for several years packages of most of the laundry soaps and synthetic detergents

EXAMPLES OF COSTS OF LAUNDRY SUPPLIES

	Detergents, including soap[1]	Non-precipitating water softeners	Precipitating water softeners	Chlorine bleaches
Amount in many packages	8 cups	3½ cups	8 cups	4 cups
Approximate price of package	32¢	42¢	24¢	12¢ to 20¢
Amount suggested on label for one load for top loading machine[2]	About 1 cup	½ cup	2-3 tablespoons	1 cup
Cost of amount suggested	4¢	6¢	1⅕¢ to 2⅖¢	3¢ to 5¢

[1]Soap, of course, is a detergent but the term is often used only for the synthetic ones.

[2]Only about one-half as much water (8 or 9 gallons) is used for washing in a tumbler as in a top loading machine, therefore only about one-half as much washing supplies are needed. But the total water demand for an entire cycle of a tumbler machine is often as much or even more.

have sold for about 30 cents and have contained about 8 cups. By comparing prices of new products with others on the market you will have a basis for deciding whether to pay the extra cost per load for softeners that dissolve soap curd, bleaches that can be used with all resin finishes, and detergents especially suited to your machine.

QUESTIONS AND ANSWERS ABOUT EQUIPMENT

1. How can I know which is the best machine to buy?

You cannot know and no one else can tell you. Practically all washers, dryers, and ironers have been well designed and tested in factory and homes. With few exceptions, all give satisfaction if properly installed and used as directed.

2. What are these exceptions?

Occasionally something goes wrong when the machine is being put together. Trouble from the machine will show up early in its use, and reliable dealers and manufacturers will replace the machine or remedy the trouble.

Water pressure, electric or gas supply, or the kind of water and laundry supplies used may be at fault. Consult your dealer, your home demonstration agent, your home service representative, or your home economics teachers.

3. What can I expect from the dealer?

You can expect the services to which you and the dealer agree, such as delivery, installation, and future adjustment and repair. Only written agreements are useful in case of disagreement. If you purchase from an authorized dealer, you can expect him to look after your guaranty privileges and to see that service is available to you. All dealers, however, are not authorized by the manufacturer.

Many cut-rate dealers, for example, do not purchase through the usual trade channels and are not authorized dealers. This means they have no contract with the manufacturer to provide service to the owner of the appliance. Customers can learn before purchasing whether a dealer is authorized and then decide whether to give up certain privileges in favor of a low price.

You cannot expect a dealer to provide service you have lost through failure to establish ownership by sending in the warranty card as requested at time of purchase or through failure to have repairs made by authorized servicemen.

4. What are the differences in washers?

All have two essential parts, one to agitate the clothes and one to remove the water. Automatic machines bring in the wash and rinse water in measured amounts and at planned temperatures, provided the hot water supply is adequate. They spin the water out and empty it for you. Top loading machines have an agitator that moves the laundry through the water. Tumbler machines wash by lifting the clothes from the water and dropping them back into it. In addition most machines have special features.

5. What about these special features?

They have been added for such reasons as to soften rinse water, to correct water temperatures, to adapt to newer fabrics that should have less agitation and spinning than are ordinarily given, and for sales appeal. As with other appliances, the price increases along with the number of special features.

An informed, careful worker can adjust her washing methods for satisfactory results with almost all machines. The special features make washing easier and may well be worth their cost to you, provided you learn to use them properly.

6. What are the differences between top loading and tumbler washers?

It is easier to make mistakes with the tumbler washer because just the exact amount of necessary detergent should be used. Too much suds reduces the force with which clothes strike the water and therefore reduces the cleaning action. Suds alone do not indicate the adequacy of the detergent because the vigorous action of the machine will produce suds even when detergent concentration is too low. There can be a greater variation in the amount of detergent used in a top loading machine.

7. What are the differences in dryers?

All dryers have a drum for tumbling the load, a fan for forcing or drawing air through the drum, a gas or electric heating unit, a thermostat to cut the heat off at a set temperature, a device to cut off the heat and tumbling at a set time or when the load reaches a given degree of dryness, and either a venting or condensing system to dispose of moisture and lint. The heat unit cuts out a few minutes before the end of the cycle.

Porcelain finishes, decorations, and special devices are added to the more expensive models. These special devices perform such functions as adapting the cycle to new fabrics and finishes of wash-and-wear garments, and

reducing the need of attention to prevent overdrying and too much wrinkling. The value of a special feature to you will depend on the kinds of articles dried and how well you understand what happens during drying. For example, you can dry almost all fabrics in any dryer if you take them out while they are slightly damp. It is only after almost all the water is removed that the temperature rises. When there is considerable water evaporating, temperatures in dryers are near those of hot wash water.

8. What does it cost to operate a dryer?

To dry 6 pounds of water from an 8-pound load will require from 2½ to 3 kilowatt hours of electricity or from 9 to 12 cubic feet of natural gas. Gas dryers require about 1/5 kilowatt hours of electricity. Condenser dryers cooled by water use 20 to 30 gallons.

9. What about washer-dryer combinations?

They have the essential features of a washer and a dryer with a mechanism for shifting from washer action to drying automatically. They save space and having to move the clothes from one machine to another. Because of slower spin, many models leave more than 6 pounds of water to be dried from an 8-pound load of clothes.

Disadvantages are the fact that you cannot wash and dry at the same time, and replacement of the combination is necessary if either part wears out. Besides, both parts may be useless when one needs repair. But these objections are not serious ones to most families.

10. What about ironers?

How useful an ironer is to you will depend on how much ironing you do, how much skill you develop in its use, and how easily you can get at the machine. It needs a circuit of its own because of the amount of current used. The cost for ironing the same load with iron and ironer are about the same. On the average, an iron will use about one-half a kilowatt hour in an hour's ironing of fabrics that are medium damp.

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